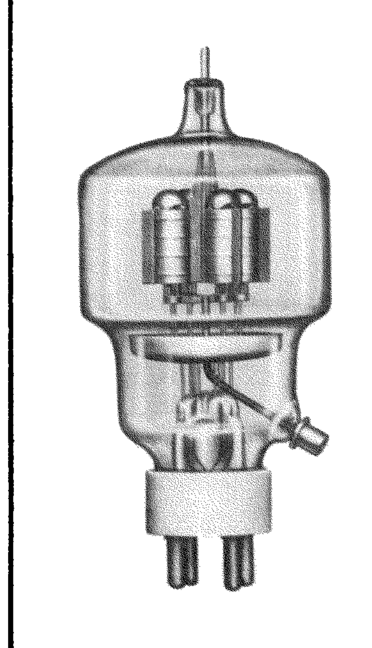
EITEL-McCULLOUGH, INC.
SAN BRUNO, CALIFORNIA

304TH

MEDIUM-MU TRIODE
•
MODULATOR
OSCILLATOR
AMPLIFIER



GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated tungsten

Voltage	5.0 or 10.0	volts
Current	25.0 or 12.5	amperes
Amplification Factor (Average)	20	
Direct Interelectrode Capacitances (Average)		
Grid-Plate	10.2	$\mu\mu f$
Grid-Filament	13.5	$\mu\mu f$
Plate-Filament	0.7	$\mu\mu f$
Transconductance (I_b=1.0 amp., E_b=3000, e_c=–40)	16,700	μmhos
Frequency for Maximum Ratings	40	mc

MECHANICAL

Base	Special 4 pin, No. 5000B	
Basing	RMA type 4BC	
Maximum Overall Dimensions:		
Length	7.625	inches
Diameter	3.563	inches
Net weight	12	ounces
Shipping weight (Average)	3.0	pounds

AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class B

	TYPICAL OPERATION—2 TUBES			MAX. RATING	
D-C Plate Voltage	1500	2000	3000	3000	volts
Max.-Signal D-C Plate Current, per tube*	•	•	•	900	ma.
Plate Dissipation, per tube*	•	•	•	300	watts
D-C Grid Voltage (approx.)	–65	–90	–150		volts
Peak A-F Grid Input Voltage	330	350	420		volts
Zero-Signal D-C Plate Current	267	200	134		ma.
Max.-Signal D-C Plate Current	1066	900	667		ma.
Max.-Signal Driving Power (approx.)	17	12	6		watts
Effective Load, Plate-to-Plate	2840	4820	10200		ohms
Max.-Signal Plate Power Output	1000	1200	1400		watts

*Averaged over any sinusoidal audio frequency cycle.

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C *Telegraphy

(Key down conditions without modulation)

	TYPICAL OPERATION—1 TUBE			MAX. RATING	
D-C Plate Voltage	1500	2000	3000	3000	volts
D-C Plate Current	667	600	500	900	ma.
D-C Grid Current	115	125	135	170	ma.
D-C Grid Voltage	–125	–200	–300		volts
Plate Power Output	700	900	1200		watts
Plate Input	1000	1200	1500		watts
Plate Dissipation	300	300	300	300	watts
Peak R. F. Grid Input Voltage, (approx.)	250	325	395		volts
Driving Power, (approx.)	25	39	53		watts

*The above figures show actual measured tube performance, and do not allow for variations in circuit losses.



EIMAC 304TH CONSTANT CURRENT CHARACTERISTICS

GRID VOLTAGE—VOLTS

-300 -200 -100 0 100 200 300 400 500

PLATE VOLTAGE — VOLTS

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500

PLATE CURRENT-AMPERES

0 .250 .500 1.00 1.50 2.00 2.50 3.00 3.50 4.00 5.00 6.00 7.00

GRID CURRENT-AMPERES

2.2 2.0 1.8 1.6 1.4 1.2 1.00 .800 .600 .500 .400 .300 .200 .150 .125 .100 .075

.050 .075 .100 .125 .100 .075

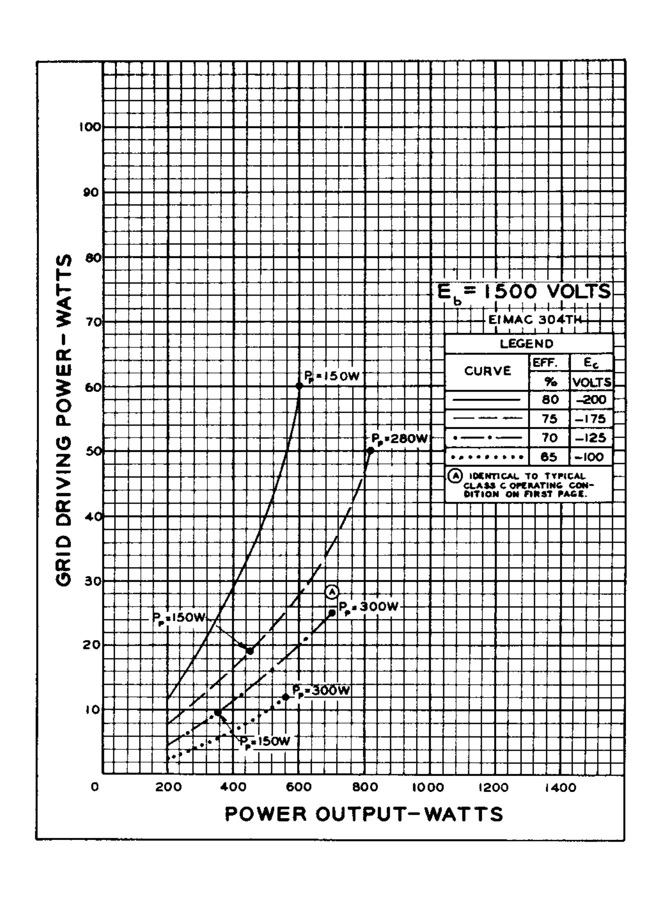
DRIVING POWER vs. POWER OUTPUT

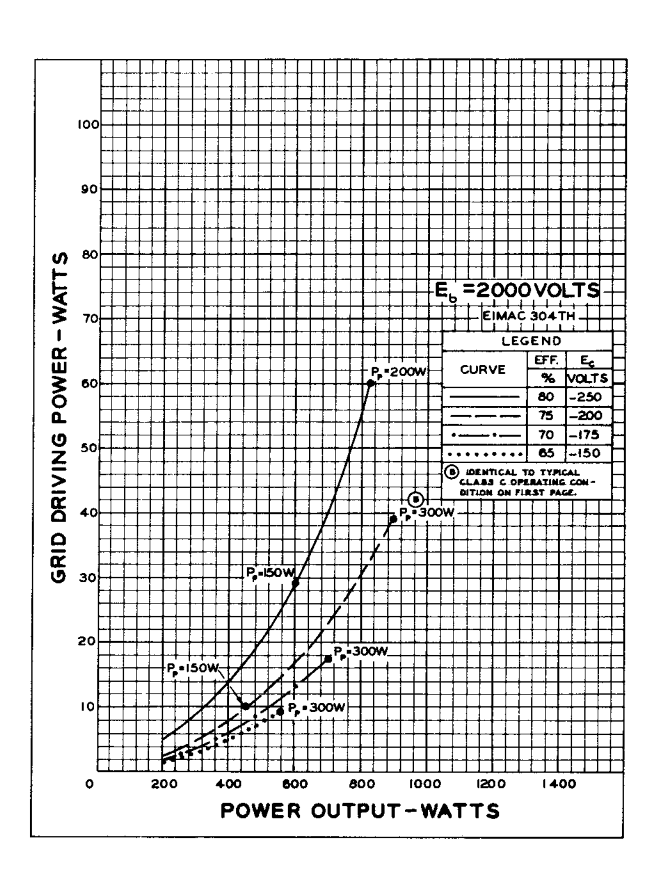
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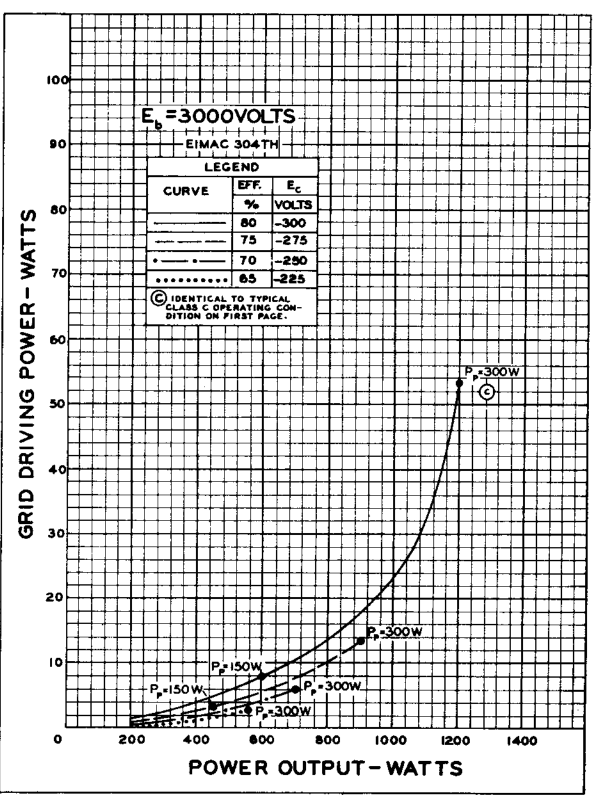
The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 1500, 2000 and 3000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by P_p.

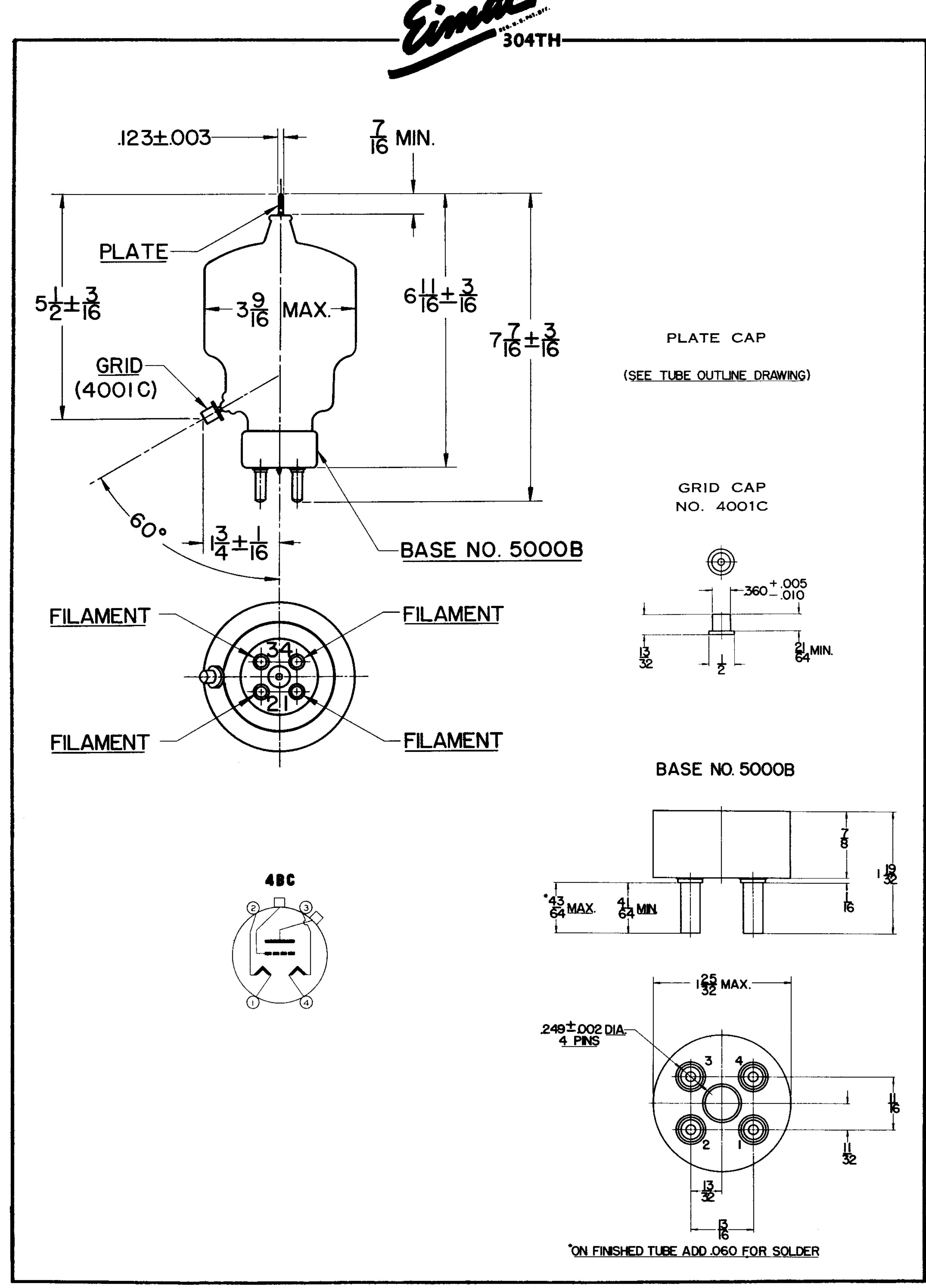
Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 1500, 2000, and 3000 volts respectively.

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Eimac
304TH
.123±.003
7/16 MIN.
PLATE
5 1/2 ± 3/16
3 9/16 MAX.
6 11/16 ± 3/16
7 7/16 ± 3/16
GRID
(4001C)
60°
1 3/4 ± 1/16
BASE NO. 5000B
FILAMENT
FILAMENT
FILAMENT
FILAMENT
4BC
PLATE CAP
(SEE TUBE OUTLINE DRAWING)
GRID CAP
NO. 4001C
.360 +.005 −.010
13/32
1/2
21/64 MIN.
BASE NO. 5000B
7/8
1 19/32
*43/64 MAX.
41/64 MIN.
1/16
1 25/32 MAX.
.249±.002 DIA.
4 PINS
11/16
11/32
13/32
13/16
*ON FINISHED TUBE ADD .060 FOR SOLDER
1-F4-21569